

AMENDMENTS TO THE CLAIMS

Claims 1 to 19 (cancelled)

Claim 20 (currently amended)

A pharmaceutical composition, comprising starch granules containing at least one fusion fusion polypeptide containing:

In the N terminal position:

- the peptide sequence of SEQ ID No: 3 ~~corresponding to the~~ comprising the granule bound starch synthase GBSSI of *Chlamydomonas reinhardtii* in the form of pre-protein of 708 amino acids, or the sequence SEQ ID No: 5 comprising ~~corresponding to the~~ GBSSI of *Chlamydomonas reinhardtii* in the form of mature protein of 651 amino acids, said sequences being encoded by nucleotide sequences SEQ ID No: 2, and 4 respectively, ~~or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned pre-GBSSI or GBSSI of *Chlamydomonas reinhardtii*,~~

~~or a fragment of the GBSSI of *Chlamydomonas reinhardtii* represented by SEQ ID No: 3, in which the amino acid of the amino terminal end corresponds to that located in one of the positions 1 to 58 of SEQ ID No: 3 and in which the amino acid of the carboxy terminal end corresponds to that located in one of the positions 495 to 708 of SEQ ID No: 3,~~

- and, in the C-terminal position, a peptide or polypeptide of interest, the C-terminal part of the amino acid sequence of the GBSSI ~~or fragment thereof mentioned above~~, thus being bound to the N-terminal part of the peptide sequence of interest,

the said fusion polypeptide being encoded by a recombinant nucleotide sequence containing in the 5' → 3' direction, a nucleotide sequence coding for said

Chlamydomonas reinhardtii GBSSI ~~or fragment thereof~~,

the said nucleotide sequence coding for this enzyme being positioned upstream of a nucleotide sequence coding for the peptide or polypeptide of interest, the peptide of interest in the said fusion polypeptides possessing a defined therapeutic effect.

Claim 21 (currently amended)

A pharmaceutical composition according to claim 20, ~~wherein fragment of the GBSSI of *Chlamydomonas reinhardtii* represented by SEQ ID No: 3 is:~~ containing

- the sequence SEQ ID No: 7 ~~corresponding to a fragment of 438 amino acids of the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*,~~

~~or the sequence SEQ ID No: 9 corresponding to a fragment of 531 amino acids of the peptide sequences of the GBSSI of *Chlamydomonas reinhardtii*,~~

said sequence being encoded by nucleotide sequences SEQ ID Nos: 6 and 8, respectively, ~~or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned GBSSI fragments of *Chlamydomonas reinhardtii*.~~

Claim 22(currently amended)

A pharmaceutical composition according to claim 20 wherein the peptide or polypeptide of interest is selected from:

- ~~these encoding~~ biologically active peptides, ~~especially peptides of therapeutic interest or that can be used in the agricultural and food industry, or~~
- ~~these encoding~~ enzymes that are able to transform starch, such as enzymes that interact with α -glucans including various hydrolases, phosphorylases, α -1,4-glucanotransferases, branching enzymes, amylases, ~~and especially heat resistant hydrolases obtained from extremophiles such as archaeobacteria that are active at temperatures above 40°C.~~

Claim 23 (currently amended)

A pharmaceutical composition according to claim 20 wherein the fusion polypeptide ~~contains~~ comprises a cleavage site positioned between the starch synthase, and the polypeptide of interest.

Claim 24 (currently amended)

A pharmaceutical composition according to claim 20, wherein the diameter of the starch granules being between about 0.1 μm and ~~several tens of~~ 10 μm , and the proportion by weight of the fusion polypeptides in these granules being between about 0.1% and 1%.

Claim 25 (currently amended)

A pharmaceutical composition comprising at least one fusion polypeptide containing:

- in the N-terminal position:

* the peptide sequence SEQ ID No: 3 ~~corresponding to the granule bound starch synthase GBSSI of *Chlamydomonas reinhardtii*, in the form of pre-protein of 708 amino acids, or the sequence SEQ ID No: 5 corresponding to the GBSSI of *Chlamydomonas reinhardtii*, in the form of mature protein of 651 amino acids, said sequence being encoded by nucleotide sequences SEQ ID Nos: 2 and 4, respectively, or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned pre-GBSSI or GBSSI of *Chlamydomonas reinhardtii*,~~

~~* or a fragment of the GBSSI of *Chlamydomonas reinhardtii*, represented by SEQ ID No: 3, in which the amino acid of the amino terminal end corresponds to that located in one of the positions 1 to 58 of SEQ ID No.: 3, and in which the amino acid of the carboxy terminal end corresponds to that located in one of the positions 195 to 708 of SEQ ID No: 3,5~~

and, in the C-terminal position, a peptide or polypeptide of interest,
the C-terminal part of the amino acid sequence of the GBSSI ~~or fragment thereof~~
~~mentioned above~~, thus being bound to the N-terminal part of the peptide sequence
of interest,
the said fusion polypeptide being encoded by a recombinant nucleotide sequence
containing in the 5' → 3' direction, a nucleotide sequence coding for said
Chlamydomonas reinhardtii GBSSI ~~or fragment thereof~~,
the said nucleotide sequence coding for this enzyme being positioned upstream of
a nucleotide sequence coding for a peptide or polypeptide of interest, the peptide
of interest in the said fusion polypeptides possessing a defined therapeutic effect.

Claim 26 (currently amended)

A pharmaceutical composition according to claim 25 containing wherein the
~~fragment of GBSSI of *Chlamydomonas reinhardtii*, represented by SEQ ID No: 3 is:~~

- . the sequence SEQ ID No: 7 ~~corresponding to a fragment of 438 amino acids of~~
~~the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*, or~~
- the sequence SEQ ID No:9 ~~corresponding to a fragment of 531 amino acids of~~
~~the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*,~~
- said sequences being encoded by nucleotide sequences SEQ ID Nos: 6 and 8
respectively; ~~or by a nucleotide sequence derived by degeneration of the~~
~~genetic code of the aforementioned nucleotide sequences, an coding for the~~
~~aforementioned GBSSI fragment of *Chlamydomonas reinhardtii*.~~

Claim 27 (currently amended)

A pharmaceutical composition according to claim 25 wherein the peptide or polypeptide of interest is selected from:

- ~~these encoding~~ biologically active peptides, ~~especially peptides of therapeutic interest or that can be used in the agricultural and food industry, or~~
- ~~these encoding~~ enzymes that are able to transform starch, such as enzymes that interact with α -glucans including various hydrolases, phosphorylases, α -1,4-glucanotransferases, branching enzymes, amylases, ~~and especially heat-resistant hydrolyases obtained from extremophiles such as archaebacteria that are active at temperatures above 40°C.~~

Claim 28 (currently amended)

A pharmaceutical composition according to claim 25 wherein the fusion polypeptide comprises ~~contains~~ a cleavage site positioned between the starch synthase, and the polypeptide of interest.

Claim 29 (new)

A pharmaceutical composition according to claim 22, wherein the biologically active peptides are peptides of therapeutic interest or peptides that can be used in the agricultural and food industry.

Claim 30 (new)

A pharmaceutical composition according to claim 22, wherein the enzymes that are able to transform starch are heat-resistant hydrolases obtained from extremophiles such as archaebacteria that are active at temperatures above 40°C.

Claim 31 (new)

A pharmaceutical composition according to claim 27, wherein the biologically active peptides are peptides of therapeutic interest or peptides that can be used in the agricultural and food industry.

Claim 32 (new)

A pharmaceutical composition according to claim 27, wherein the enzymes that are able to transform starch are heat-resistant hydrolases obtained from extremophiles such as archebacteria that are active at temperatures above 40°C.